

AMENDMENT UNDER 37 C.F.R. § 1.111  
U.S. Appln. No. 09/453,526

**REMARKS**

Claims 12-24, 26-34 and 36-85 are all the claims pending in the application. As mentioned in Applicant's previous response, claims 1-11 were canceled in the Preliminary Amendment filed July 28, 2000. Claims 25 and 35 are hereby canceled and claims 83-85 are added. Claims 20-22, 30-33, 53, 54, 57-60, 63, and 65-68 are withdrawn from consideration as being drawn to a non-elected invention. Applicant gratefully acknowledges the allowance of claims 12-19, 23, 38, 41-52, 55, 56, 61, 62, 69-74 and 80 and the indicated allowable subject matter in claims 25-29 and 35-37, which are presently objected. Claims 24, 34, 39, 40, 64, 75-79, 81 and 82 presently stand rejected.

Specifically, Claims 24, 39 and 40 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Molnar et al. (USP 6,081,566) in view of Kobayakawa et al. (USP 6,058,318);

Claim 34 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Molnar et al. (USP 6,081,566) in view of Shapira et al. (USP 6,650,110); and

Claims 75-79, 81 and 82 are rejected under 35 U.S.C. § 102€ as being anticipated by Molnar et al. (USP 6,081,566).

For the reasons set forth below, Applicant respectfully traverses the rejections and requests favorable disposition of the application.

***Argument***

In regard to the rejection of claim 24, Applicant has amended claim 24 to include the allowable subject matter recited in claim 25. Accordingly, claim 24 should be found allowable.

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Claim 25 has been canceled and claim 62 has been amended to depend from claim 24.

Dependent claims 26-29 and 62 should be found allowable at least by virtue of their dependence on allowable claim 24.

In regard to the rejection of claim 34, Applicant has amended claim 34 to include the allowable subject matter recited in claim 35. Accordingly, claim 34 should be found allowable.

Claim 35 has been canceled and claim 36 has been amended to depend from claim 34.

Dependent claims 36, 37 and 64 should be found allowable at least by virtue of their dependence on allowable claim 34.

In regard to claims 39 and 40, Applicant submits that the prior art of record fails to teach or suggest at least the subject matter recited in independent claim 39. More particularly, neither Molnar nor Kobayakawa teach or suggest, either alone or in combination,

forming left and right topological groupings of a topological number array of digital representations of said signals, said groupings formed about a topocentric reference of the two groupings that corresponds to a zero value injection from a stored predetermined value injection pattern comprised of positive and negative steps, which are incrementally increasing in magnitude, in each of two or more rows of similar increments having a common topocentric zero reference

as recited in independent claim 39. Accordingly, claims 39 and 40, which depends from claim 39, should be found allowable. Further, it is respectfully submitted that the Examiner has failed to set forth a prime facie case of obviousness with respect to claims 39 and 40. For example, the Examiner has not indicated where in the prior art references the recited limitations of the claims are disclosed, nor has the Examiner indicated why one having ordinary skill in the

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art would have combined the independent teachings of the two prior art references to achieve the claimed invention. For at least these reasons, the Examiner is respectfully requested to withdraw the rejection of claims 39 and 40. Alternatively, if the rejection of claims 39 and 40 is maintained, it is requested that the basis for such rejection be specifically provided.

In regard to the rejection of claims 75-79, Applicant respectfully submits that Molnar fails to teach or suggest all of the features disclosed and claimed. For example, Applicant's invention is distinguished from Molnar by providing the use of "*surrogate carrier signals of known values that are substituted for actual signals*" and which are compared to each of several predetermined values", as recited in independent claim 75 and dependent claims 76 and 77. Furthermore, Molnar does not teach or suggest "means for approximating a unity signal-to-noise condition by employing *wider system bandwidth of the receiving system to provide enough additional noise so that it is nearly equal to the signal*", as recited in independengt claim 78 or "means for searching and acquiring a desired signal in a time synchronization and detection process resulting in synchronization of a timing clock that samples in both in-phase and quadrature analog-to-digital converters so as to establish a system reference phase and thereafter introduce an *appropriate sequence of surrogate signal estimates*", as recited in independent claim 79.

As one consequence of the invention as claimed in claims 75, 78 and 79, rapidly fluctuating signals are accommodated in a standalone independent fashion without requiring diversity provisions.

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Molnar, in comparison, discloses a diversity method that depends on polarization of signal characteristics, see, for example, column 3, lines 44-55, and fails to disclose any of the above-identified emphasized features of the present claims. Shortcomings with respect to the diversity-type, polarization-dependent, method as disclosed in Molnar are especially pertinent because the signal behavior is unpredictable when signals consist of reflected “echoes”, as are present in Radar applications, for example, and with respect to signals that fluctuate in both polarization (phase) and magnitude, due to path anomalies. These shortcomings are avoided in the present invention. Specifically, the claimed invention can reliably and consistently predict the characteristics of fluctuating signals by providing two or more successive samples or trials that are utilized to provide confirmation that an endomorphic process has been achieved such that a combination of trials together provide a frame of information concerning a signal carrier at a rate such that a series of frames will accommodate a changing nature or modulation of the carrier to provide the ability in a standalone non-diversity fashion.

According to at least one embodiment of the claimed invention, an array of elements is divided into different phase groups and each such group operates in a stand-alone fashion in that it is not furnished with any apriori information related to either the presence or relative magnitude of the signal, such as is provided by a pilot signal or by another antenna in a diversity method. Applicant's disclosed and claimed approach provides a self-contained system that is not dependent on such augmentation.

It is a well known challenge in communication and radar systems to detect weak signals. The detection of such weak signals is made more difficult when no apriori information is

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available. The present invention addresses the difficulties attendant with this situation by operating on data prior to detection by simultaneously and automatically processing signals over the entire bandwidth of channels, i.e., frequencies. Thus, there is no need to isolate a specific channel so as to obtain narrow-band filtering, as is the case with typical conventional systems, such as the prior art references cited by the Examiner. By operating over the entire bandwidth simultaneously, the present invention is able to achieve a detection capability not dependent on receiving a pilot pulse and, thus enabling the claimed system to detect a signal 20dB or more weaker than can be detected by conventional systems.

The ability of the present system to operate in the absence of pilot or diversity signals is implicit in the method and system disclosed and claimed in the present application. This ability allows the instant system to detect and acquire rapidly fluctuating targets, e.g., radar “echoes”, etc., without the need for signal polarization.

For the above reasons, Applicant submits that the present invention is novel and patentable over the asserted prior art of record and requests that the rejections to the present claims be withdrawn.

*Patentability of New Claims*

For additional claim coverage merited by the scope of the invention, Applicant has added new claims 83-85. Applicant submits that the prior art does not disclose, teach, or otherwise suggest the combination of features contained therein.

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***Conclusion***

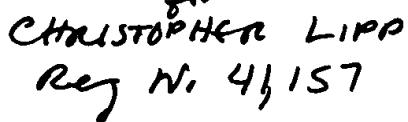
In view of the foregoing amendments and remarks, the application is believed to be in form for immediate allowance with at least claims 12-19, 23, 24, 26-29, 34, 36-52, 55, 56, 61, 62, 64 and 69-85, and such action is hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, he is kindly requested to **contact the undersigned** at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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